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ABSTRACT

The Bio-Medical Library at the University of Minnesota has access to two on-line computer systems: the MEDLINE system (MEDLARS ON-LINE) of the National Library of Medicine and the State University of New York (SUNY) Biomedical Communication Network. MEDLINE consists of two files which provide coverage of the "Index Medicus" from 1970 to the present. The SUNY network offers the same on-line retrieval of "Index Medicus" but also includes off-line retrospective searches from 1964 to date. In addition, the SUNY system has a title scan feature which permits title searching by any specific terms desired to pinpoint information. The MEDLINE system is used unless the subject area of the search is peripheral to clinical medicine, a comprehensive search prior to 1970 is needed, or a very specific term is required. In these cases or when the MEDLINE system is not available, the SUNY system is used. (JG)

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COORDINATION OF TWO ON-LINE INFORMATION RETRIEVAL SERVICES

AT THE

UNIVERSITY OF MINNESOTA BIO-MEDICAL LIBRARY

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INTRODUCTION

The printed Index Medicus has long been the most widely used journal citation retrieval tool for the health professionals. In response to the need for more rapid bibliographic access to the Index Medicus, MEDLARS (Medical Literature Analysis and Retrieval System), a computer-based system, became operational in 1966. MEDLARS did produce comprehensive bibliographies, but it was a batched system and thus was not as rapid as necessary. To be truly efficient, an on-line system was needed. By 1970 two on-line systems made the Index Medicus available for computer-assisted bibliographic searching: SUNY and MEDLINE.

The introduction of the State University of New York (SUNY) Biomedical Communication Network as the first on-line system for the retrieval of biomedical literature in October, 1968 heralded the beginning of a new era in the provision of medical library services.

The ability of on-line computer systems to store and then search the vast and continually increasing number of citations to biomedical literature allows the medical library to offer its patrons computer-produced bibliographies on a wide variety of subjects within a matter of minutes by eliminating the need for manual searching in all the standard printed reference sources.

The success of the SUNY Network spurred the development of other on-line information systems in biomedicine. The National Library of Medicine's AIM-TWX service became available in 1970, followed closely by their more comprehensive MEDLINE service in 1971. On-line access is also available to chemical, biological, psychological, and other health-related literature.

BIO-MEDICAL LIBRARY OFFERS TWO ON-LINE SERVICES

The Bio-Medical Library at the University of Minnesota will soon join the ranks of the growing number of medical libraries that are able to provide their patrons access to multiple on-line information services.

The Library joined the National Library of Medicine's MEDLINE system in June, 1972 and became a member of the SUNY Network in March, 1973, providing its library patrons access to two separate on-line retrieval services to help meet their information needs. Thus in less than a year, the library progressed from the manual processing of information requests into the position of offering computerized literature searching from multiple data bases.

The Bio-Medical Library has initiated or is planning many new programs which improve service to patrons, such as computerization of technical processing. The user, however, often is not aware of the actual source of such improved service. The on-line bibliographic search service is very apparent to the user, as it provides assistance for a personal, immediate information need of each person. The on-line search represents one of the major new changes in direct patron service.

This major change in the approach to literature searching has been accompanied by a dramatic increase in the number of information requests received at the Bio-Medical Library. In the 7 month period from July 1972

through January 1973 there were more than 1400 requests for computer searches, indicating the overwhelmingly favorable user response to this new type of library service.

It is expected that the recent addition of the SUNY service will further increase the volume of requests, because it provides even more comprehensive coverage of the biomedical literature than is currently available via the MEDLINE service. With the two systems together, the library should be able to serve a wider range of health professionals than was previously possible. It is most important that the two services be effectively coordinated in order to insure the best service to the user population. It is this coordination process which is the main concern of the present paper. After a brief description of both the MEDLINE and SUNY systems and their coverage, the remainder of the paper will be devoted to a discussion of the way in which the information services staff of the library plans to utilize both services to their fullest capacity in an effort to secure the best possible result for the patron who needs the information.

MEDLINE

The National Library of Medicine's system, MEDLINE (MEDLARS ON-LINE), gives access to 1,200 journals in the Index Medicus data base for the years 1970 to date. The usefulness of MEDLINE is enhanced by two additional files: SDILINE (Selective Dissemination of Information On-Line) and COMPFILE. SDILINE is most effective as a current awareness tool as it makes citations on a given subject available almost one month before the monthly issue of Index Medicus is released. The COMPFILE data base contains all those Index Medicus journals not included in MEDLINE. Like MEDLINE, it covers the past three years. Thus a search on MEDLINE and COMPFILE gives access to the total Index Medicus data base for a three year period. At the present, use of COMPFILE is limited to 5 hours on Saturday.

Prior to its participation in the MEDLINE system, the Bio-Medical Library offered manual search service to a limited number of the faculty and to rural practitioners without local library facilities. Thus MEDLINE has not replaced a regular service. Rather, it has added a new service heretofore unavailable to the University student and to the majority of the staff and faculty.

The increasing amount of requests, the growing number of repeat users, and the appreciative comments by the patrons all attest to the value of the MEDLINE system. But MEDLINE does have some limitations, especially in institutions where a wide variety of patrons from many disciplines are seeking bibliographic assistance. Four major problems in the MEDLINE service have been identified. They are: (1) the subject requested is poorly covered by MEDLINE, (2) the number of years covered is not adequate, (3) MeSH vocabulary does not include the appropriate term for the search, and (4) the MEDLINE system is not always available when needed.

Although MEDLINE is a good service and has become very popular, it was felt that the Library should have several data bases covering more years and should have some variety in the capability of the systems available. Also, it was essential that there be some assurance of accessing the system when needed. It was decided that the coordinated MEDLINE and SUNY BIOMEDICAL

COMMUNICATION NETWORK services would eliminate many of the problems and provide the best service until such a time when other data bases could be added.

THE SUNY NETWORK

The SUNY Biomedical Communication Network, with headquarters in Albany, New York, offers its members retrospective searching of the complete MEDLARS (Index Medicus) data base containing more than 2 million citations from over 2,700 biomedical journals. Users may obtain references on-line from 1970 to the present and off-line back through 1964, representing over 9 years of literature coverage. The system is currently available seven hours a day, five days a week. Continuous access to the data is possible at any time during this operational schedule.

SUNY searches are processed in much the same way as MEDLINE searches, and the type of output returned to the user is identical in content although somewhat different in format. Both systems provide current awareness or SDI services in addition to the demand or retrospective search service.

There are two basic differences between the SUNY and MEDLINE systems. The first is their coverage. As pointed out above, the complete MEDLARS file (references from over 2,700 journals) is available via SUNY, while MEDLINE covers only one-half the MEDLARS data base (references to 1,200 journals). SUNY covers a nine-year time period from 1964 to the present; MEDLINE covers only from 1970 to the present.

The other basic difference between the two systems is the availability of an additional capability in the SUNY system called the title scan feature. The title scan feature makes it possible to search for information more specific in nature than is the case on the MEDLINE system. Before an information request can be processed on either system, it must first be translated into the control vocabulary Medical Subject Headings (MeSH). Since the MeSH listing contains only about 8,000 terms it is obvious that in many cases the specific concept required by the user does not exist as a retrieval term and a more general term must be used. For example, if a user wants to retrieve articles on "snowmobile injuries" the closest available MeSH terms are the more general headings such as ACCIDENTS, TRAFFIC, or SPORT MEDICINE OR ATHLETIC INJURIES. If terms such as these are entered, the user will be faced with a printout containing a large number of citations, only a few of which will be specific to snowmobile injuries. The title scan feature offers a solution to this type of retrieval problem because it enables the user to further restrict the output of a general search by requiring that a specific word or phrase be in the titles of the articles. To retrieve citations specific to snowmobile injuries, the user can ask the computer to print out only those citations found under the general headings which had the word "snowmobile's" in the title. For this reason, the title scan feature is an extremely valuable capability that permits the processing of many search requests on the SUNY system that would not be amenable to MEDLINE searching due to vocabulary restrictions.

THE COORDINATION OF THE MEDLINE AND SUNY SEARCH SERVICES

The availability of two distinct information services makes it extremely important that guidelines are developed to determine the best possible coordination of these services.

How will the decision be made regarding which service to use for which types of information requests?

The following five factors have been established as guidelines to help determine the processing alternatives for a given information request:

1. The subject matter of the request
2. The depth of the retrieval requested
3. The time period to be covered
4. The vocabulary required
5. The urgency of the request

Subject Matter

If the subject matter falls clearly into the realm of clinical medicine, MEDLINE will usually provide adequate retrieval. If the subject matter of the search falls into an area which is considered peripheral to clinical medicine - such as the basic sciences (biology, microbiology, biochemistry, etc.) or the behavioral sciences (psychology, sociology, etc.) - the search will be processed on the SUNY system because SUNY's coverage in these areas is more extensive. Requests in the area of Nursing and Dentistry will also be processed on SUNY because only the SUNY data base includes all citations from the International Nursing Index and the Index to Dental Literature.

Response to the announcement that computer assisted bibliographic service was available has come from a variety of health science and related disciplines. During the month of January 1973, MEDLINE search requests were tallied to determine use by different departments and disciplines. The Department of Cell Biology and Genetics made the most requests, with Nutrition and Food Sciences and Public Health Nursing following in second and third place. A heavy emphasis on drug and drug-related searches was also noted, with requests coming not only from pharmacology and the medical sciences but Psychology and Biochemistry as well. A count of the January statistics revealed 52 different disciplines represented from the University alone - a figure which does not reflect the diversity of requests received from non-University health professionals. From the requests received it is apparent that more than one data base is needed to cover the complexity of the medical and biological subject matter needed.

Depth of Retrieval

On the search request form that the user completes he is asked to indicate the depth of retrieval he expects from his search by checking one of the following alternatives:

1. Few, very relevant articles
2. Comprehensive search with possibility of peripheral material

If he checks #1, his search will probably be processed adequately on MEDLINE. If he check #2, the search will be processed on SUNY to provide more comprehensive retrieval.

Time Period

Requests for the most recent information only can be processed on MEDLINE from 1970 to the present. If comprehensive coverage is requested for the current years, however, SUNY can be used. Three year coverage is not always adequate for many subject requests. Search requests from outstate practitioners, for example, often specify that the librarian select appropriate articles from

the bibliographies. In the past, a manual search was often done to supplement a MEDLINE search because the appropriate material, such as a review, often appeared before 1970. Requests for information on very unusual cases also require searching previous to 1970. Persons involved in extensive research projects or the writing of books, papers or grant proposals, normally request more comprehensive time coverage. Those requests for information prior to 1970 will be processed on SUNY, since the SUNY data base is searchable back through 1964.

Vocabulary Required

Search requests for which appropriate MeSH terminology is available can be processed on either MEDLINE or SUNY. If, however, there is no terminology specific enough to adequately restrict a search, then the title scan feature of the SUNY system can be utilized to provide better results. A great many searches, such as the one mentioned above for "snowmobile injuries" will require the use of this title scan feature.

In a local hospital library study, many of the practicing physicians requested a few relevant citations on a fairly specific subject. For example, a request for citations on left heart block would be judged less than satisfactory if it also contained references to right heart block. Since the MeSH vocabulary contains only the general term Heart Block and does not account for the concept of right and left, the search would be processed on SUNY with a title scan for "left" to provide the user with citations specific to his request.

Urgency of the request

MEDLINE is a shared computer system. As such, it is not always available to every MEDLINE searcher when needed. When the number of requests is high, lack of immediate access is often a major problem and has limited MEDLINE's potential for assisting the reference librarian in the answering of complex search questions. The hospital study emphasized the need for assured accessibility to the data base. One bibliography, delayed by the unavailability of the system, arrived too late to be useful for the physician seeking information on the treatment for ingested glass.

Since the SUNY is a leased line rather than a shared-time system, users are assured continuous access to its data base at any time during the operational day.

However, both systems are occasionally subject to software or hardware problems that make them temporarily unavailable for searching. The important point here is that with two systems available the change of inaccessibility is reduced. If an urgent search request comes in, it will be processed on whichever system is available at the time, because both systems process searches at approximately the same speed. If both systems are available, then the decision can be based on the other factors discussed above.

It is hoped that by using these guidelines for the evaluation of all incoming search requests, the best search results can be obtained. In this way, MEDLINE and SUNY can combine to provide more comprehensive, overall retrieval service for the library patrons.

THE FUTURE

It is anticipated that the Bio-Medical Library will soon be able to offer even more on-line data base services in addition to the MEDLARS data base that is currently available via MEDLINE and SUNY.

On-line access to data bases in the areas of biology, chemistry, environmental science, psychology and education is being planned by the SUNY Network for use by its member libraries.

When these services become available, it will be even more important that information requests are channeled to the best possible data base's for processing. The effective coordination of all these machine services will provide the Bio-Medical patrons with one of the most comprehensive and effective information sources in the country.